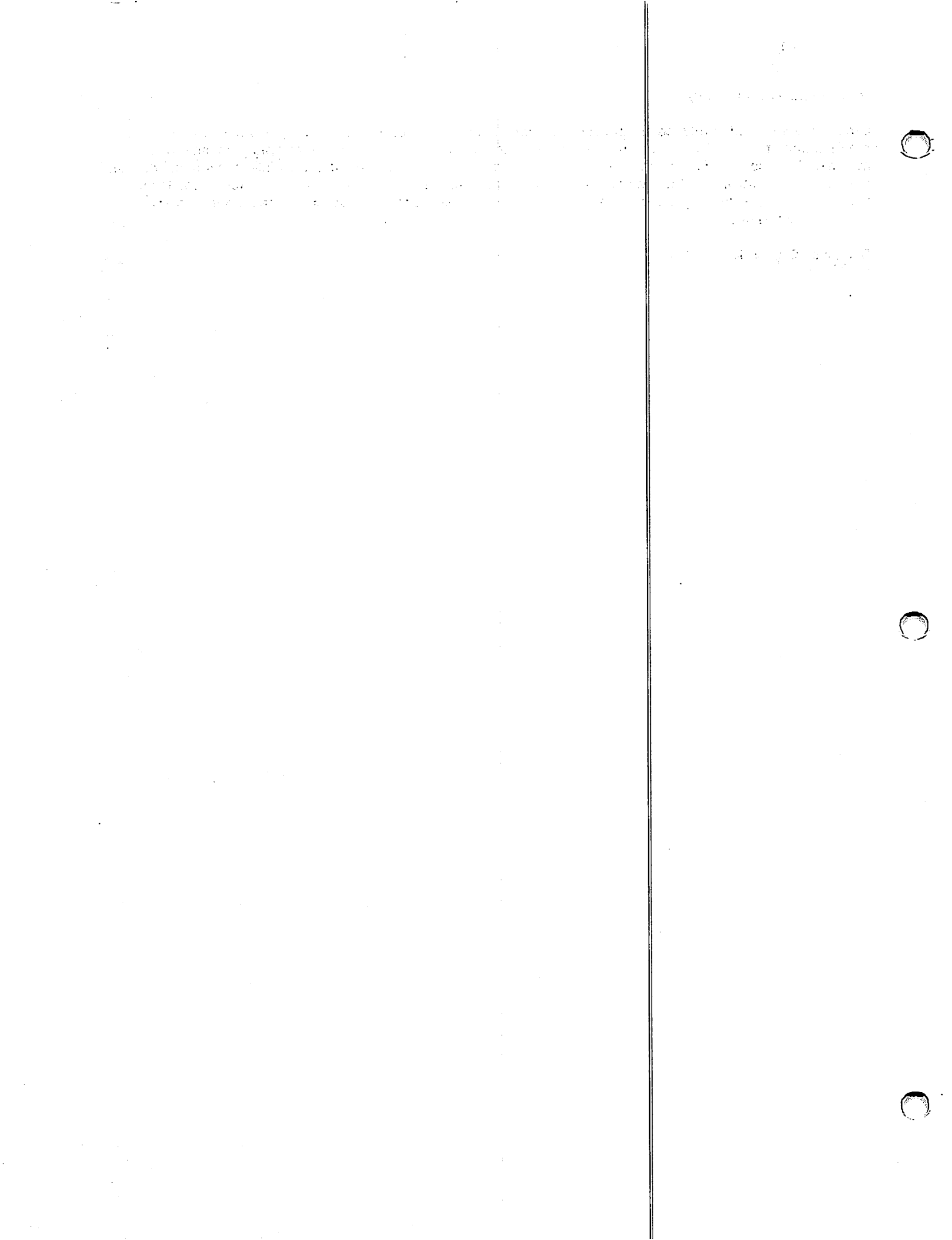


**lime (chemical compound)**

Lime, quicklime, and burnt lime are the common names for calcium oxide,  $\text{CaO}$ , a grayish-white powder. The manufacture of over 150 important industrial chemicals requires the use of lime. In fact only five other raw materials (salt, coal, sulfur, air, and water) are used in greater amounts. Lime is used in glass, cement, brick, and other building materials; in the manufacture of steel, aluminum, and magnesium; in poultry feed; and in the processing of cane and sugar beet juices. Lime is strongly caustic and can severely irritate human skin and mucous membranes.

See also: **CALCIUM**.



sinter

Sinter, a porous mineral deposit usually formed in thermal waters, may be composed of either opaline silica or calcium carbonate. Silica-rich sinter (geyserite) is deposited largely through the action of algae and occurs as crusts near hot springs and geysers, sometimes forming conical mounds or terraces.

TRAVERTINE and other calcareous sinter (sometimes called tufa) is precipitated in thermal waters by mosses and other organic matter. Common in limestone districts, travertine was the principal building stone of ancient Rome.

... ..

... ..

## brick and bricklaying

Building bricks are masonry units made of clay and hardened by heat or chemical action. Sun-dried, or ADOBE, bricks are a mixture of clay and vegetable fibers; kiln-burned bricks are made from clays and are formed in a mold and fired in a kiln (oven) to hardness. Sand-lime bricks are a mixture of sand and lime that has been hardened under steam pressure. Concrete bricks are composed of portland cement and aggregate. The most commonly used type is kiln-burned brick.

### HISTORY

In the Babylonian civilization (c.3500 BC) that developed in the valley of the Tigris and Euphrates rivers, the thick clay and mud deposited by the rivers was well suited for making bricks. Immense pyramids (see ZIGGURAT) were constructed of sun-dried brick faced with kiln-burned glazed brick of many colors. The bricks were held together with bitumens (naturally occurring tars). The Romans made wide use of kiln-burned brick in conjunction with an efficient mortar of lime and volcanic ash (pozzuolana). As the Roman Empire declined, the art of brickmaking disappeared in most of Europe and was revived only in the late Middle Ages, influenced by the Italian and Byzantine artisans who had kept the technology alive.

In the earliest method of brickmaking, clay was pulverized, mixed with water to form a stiff paste, and pressed into molds by hand. The bricks were then turned out of the molds and dried in the sun. The kiln consisted of a series of arches made from the naturally dried brick. More dried brick was piled atop the arches in a checkerboard pattern to form a beehive-shaped mound, and a fire was built under the arches. Because the heat of the fire was uneven, the bricks closest to the fire burned to a shining surface that was almost black. These occasionally warped bricks, called clinkers, were used for special architectural effects. Bricks on the outer shell of the mound fired to a lighter color and were called salmon brick.

### MANUFACTURING

Most brick produced in the United States is made by the stiff-mud process, using mixtures of surface clays and shales. In the soft-mud process, a much wetter clay is pressed into molds or extruded, rather than sliced from a brick-sized column of clay. In the dry-press process high pressure is used to compress a fairly dry clay in a mold and is then used to manufacture refractory masonry, such as FIREBRICK.

Modern kilns are permanent enclosures with the heat usually generated by external ovens. The heated air is circulated through the bricks stacked in the kiln to produce a fairly uniform masonry unit. Kilns are classed as intermittent or continuous. In the intermittent kiln, the brick must be piled, fired, cooled, and the bricks removed before new dried brick is piled to be fired. The continuous, or tunnel, kiln consists of a tunnel with several zones in which the temperature is carefully controlled. The moist clay formed by machines is loaded onto special cars that are drawn through the kiln at a constant rate of speed. The bricks are successively shaped, dried, fired, and cooled to produce a uniform product.

The most widely used brick is called common brick. Its color will vary from a dark orange to a yellow or deep red, depending on the type of clay used. Face brick is manufactured to close tolerances in size, structural qualities, color, and finish. It is sometimes glazed and used as a facing on exposed wall surfaces. Firebrick is used for lining fireplaces and furnaces; it is beige to light brown in color and is weaker than common brick.

### BRICKWORK

Brickwork is designed so that individual bricks are bonded into a structure that will act as a whole. The texture, strength, and watertightness of a brick wall depend greatly on the skill of the bricklayer. Mortar joints between individual bricks must be well formed and watertight. The mortar used to hold the bricks together consists usually of portland cement, lime, and sand, although mortar types vary throughout the world.

The "bond" of a brick wall is the arrangement of bricks in rows or courses. The type of bond used will determine the appearance of a wall. Bonds tie 2 or 3 tiers of brick together or they tie an outer brick facing to an inner backup wall.

Steel reinforcing bars increase the shearing and bending strength of a load-bearing brick wall. The steel bars may be placed in the mortar joints between bricks or in a double wall in the cavity between outer and inner walls. The cavity may be left as a dead-air space to provide for evaporation of moisture from the walls, or it is sometimes filled

polysyll. & lang. 1964

[illegible]

000000

1. The first step in the process of the investigation is to identify the problem. This is done by the investigator who is assigned to the case. The investigator will then gather information about the problem and the people involved. This information will be used to determine the cause of the problem and to develop a plan to solve it.

[illegible]

5:45 PM 2/24/2016

10-10-1964

[illegible]

1. The first question is whether the defendant's conduct was negligent. The court found that the defendant's conduct was negligent because he failed to take reasonable steps to ensure the safety of the passengers. The court cited several precedents in support of its finding.

1970-1979

...the ... ..  
... ..  
... ..  
... ..

ent exercise of the "unfettered" right will require a showing of its necessity; said that it was a "fundamental" right  
guaranteed by the prior law; however as yet no indication as to whether or not such a right is considered

(b)(7)

with the results of the flow field gradient-based risk diagnosis proposed by Gholizadeh et al. (2019) and the results of the flow field gradient-based risk diagnosis proposed by Gholizadeh et al. (2019) and the results of the flow field gradient-based risk diagnosis proposed by Gholizadeh et al. (2019).

with grout, a mortar of pouring consistency.

New methods were developed in the 1970s for producing prefabricated reinforced brick masonry panels. Masonry panels as large as 2.4 x 6.1 m (8 x 20 ft) are fabricated in specially equipped shops and transported to the job site for erection. The steel-reinforced brick panels are hoisted into position by cranes and welded or bolted to the structural frame.

Don A. Watson

Bibliography: Gurcke, Karl, Bricks and Brickmaking (1987); Hayward, Robert, The Brick Book (1977); Watson, D. A., Construction Materials and Methods, 2d ed. (1978).

with good results in the laboratory.

The methods were developed in the 1970s for processing contaminated materials with heavy metals. The materials were large, as 2.5 m x 1.5 m x 1.5 m, and were placed in the site in the 1970s. The materials were placed in the site in the 1970s. The materials were placed in the site in the 1970s.

General Information

Background: The site is located in the area of the site. The site is located in the area of the site. The site is located in the area of the site.